



Aerospace Case Study 03/2018

Company: Nasmyth Bulwell

..... Xtreme

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Xtreme



Nasmyth Bulwell specialise in the manufacture of precision parts, kits, airframe assemblies and sub-assemblies for the global aerospace and allied industries. The company's advanced manufacturing facility in Pinxton, Nottinghamshire is equipped with a range of cutting-edge technologies that helps to deliver integrated precision manufacturing solutions and a comprehensive supply chain infrastructure.

Nasmyth Bulwell utilises a wide range of advanced CNC machine tools to produce fine-tolerance, quality-assured components in steel, aluminium, nimonics, super alloys and other materials. In addition to its advanced machining provision, the company offers a further comprehensive range of services including water jet cutting, heat treatment, anodising, non-destructive testing and paint and plasma spraying.

The company strict Quality Management System has been developed to encompass all aerospace industry standards and a wide range of approvals. To help ensure the manufacture of premium quality components and to comply with the most stringent of traceability standards, the company's output is subject to a variety of industry leading inspection and testing procedures.

Nasmyth Bulwell make use of a wide range of advanced inspection aids, including six large capacity Coordinate Measuring Machines (CMMs) that are located in an environmentally controlled inspection facility. In response to 'cost-down' pressures and to complement the work of the company's existing CMMs, a search was recently made for a robust, accurate CMM that that could deliver the required standards of precision and speed of operation on the company's shop-floor. A successful demonstration convinced Nasmyth Bulwell Quality Manager, Jonathan Walsh that the advanced Xtreme CNC CMM from Aberlink satisfied all of the company's demanding criteria.

Jonathan Walsh explained "As we operate in what is a fiercely competitive industry, in addition to ensuring that we deliver premium quality parts, we are constantly exploring more efficient ways of both manufacturing and inspecting our output. Our system improvements and investments in innovative technology, together with observing our strict quality standards, have enabled Nasmyth Bulwell to secure significant contracts. For instance, we have recently been awarded contracts worth more than £60 million from a major aerospace OEM. These long-term agreements are for the supply of both legacy and new, complex components for engines which are fitted to the latest wide body aircraft.

"In keeping with Nasmyth Bulwell's philosophy of constantly upgrading our systems and adopting industry leading manufacturing and inspection methodologies, we recently decided to instigate a precise shop-floor CMM provision. Having evaluated several shop-floor CMMs against our demanding list of requirements, an impressive demonstration of Aberlink's Xtreme CNC CMM, together with Aberlink's excellent reputation, convinced me that the Xtreme was the ideal machine for our needs.

"As our new Xtreme CMM was due to operate within a non-temperature controlled, production environment, even though our new CMM had a traceable calibration certificate and despite Aberlink providing assurances related to the Xtreme's accuracy, we decided to verify the its performance in-house. Having measured several complex, tight-tolerance components on our new Aberlink machine, then on our inspection department CMMs, we were happy that the readings corresponded.

"The accuracy, CNC nature and speed of our new Aberlink CMM means that it is able to perform comprehensive inspection routines on manufactured components within the cycle time of the machine tool it is located next to. Now, rather than our skilled machine operators taking a first-off part to our busy inspection department for pass-off and experiencing delays waiting for a CMM to complete its current task, they are able to quickly confirm components' dimensions before commencing full production.

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“In the cell the Xtreme is dedicated to, as a component is now fully inspected before the next component is machined, the speed of feed-back achieved through in-cycle measurement, allows adjustments to be quickly made when a feature is drifting from its nominal size. Our new inspection method has increased our efficiency and further reduced our already low scrap rates.

“In addition to taking the strain off our busy inspection department, the efficiencies we have realised through our use of our new Aberlink shop-floor CMM mean that we plan to purchase further Aberlink Xtreme models in the future.”

Launched in a blaze of publicity at the MACH 2016 exhibition, the Aberlink Xtreme CNC Coordinate Measuring Machine was designed to provide accuracy, ease-of-use and speed-of-measurement within production environments. The great global success of the Xtreme recently prompted Aberlink to launch a larger capacity Xtreme CMM. Aberlink’s Gloucestershire based manufacturing facility is now working flat-out to keep pace with both UK and overseas demand for this unique range of CMMs.

The Xtreme has a novel, non-Cartesian structure and makes use of linear motors and mechanical bearings, this advantageous arrangement guarantees that the CMM maintains its impressive accuracy performance at very fast measurement speeds and ensures that it does not suffer from the accumulative inaccuracies that occur in conventional 3-axis Cartesian arrangements.

Aberlink’s inexpensive CNC Xtreme requires no compressed air and boasts the shortest learning curve of any equivalent system; therefore an inexperienced operator is normally able to become competent in the Xtreme’s use in just a single day, making the robust CMM the ideal ‘plug and go’ shop-floor measuring solution. In addition, the Xtreme’s integral temperature control function ensures that accuracy levels are maintained even when the surrounding ambient temperature is not controlled.

Ensuring greater user productivity and profitability, the Xtreme utilises Aberlink’s renowned 3D software. A welcome bi-product of any Aberlink 3D inspection routine is that a simultaneous picture of the measured component is created on the CMMs computer screen. Dimensions between the measured features, mirroring those that appear on the component drawing, can be simply picked off as required. In essence this ‘smart’ software represents an intelligent measuring system that is able to automatically recognise and define the various features being measured. Aberlink 3D is claimed to be the easiest to use and most intuitive CMM software currently available, making it ideal for use by both quality and production personnel.

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